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# ICT and AG Development: Cloud Phones, mFarmer and More


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How are you using – or thinking about – ICT today?
What is especially difficult?

# Key Points

**What we need for good AG development:**

## 1. Affordable Access to Telecom Services

- **Access improving but access for the rural poor still lags**
- **A few key ways to tackle this**

## 2.ICT Applications to Increase Impact

- **Lots of projects use ICT but far too few with apps that are sustainable, scalable.**
- **Why we care: key problems ICT can help solve.**
- **A few examples.**

## 3.What Works – and What Doesn't

- **Up-front business plans: some possible revenue sources**

## 4.Where to Get Help

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2. **ICT-enabled applications to increase impact**
   - **Why we care: key problems ICT can help solve.**
   - **Lots of projects use ICT but far too few apps are sustainable, scalable.**
   - **A few examples**
3. What Works – and What Doesn't
   - Up-front business plans: some possible revenue sources
4. Where to Get Help

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   - Lots of projects use ICT but far too few with apps that are sustainable, scalable.
   - Why we care: key problems ICT can help solve.
   - A few examples.
3. **A closer look at low-cost video**
4. A closer look at low cost video, radio
5. Where to Get Help

# Key Points

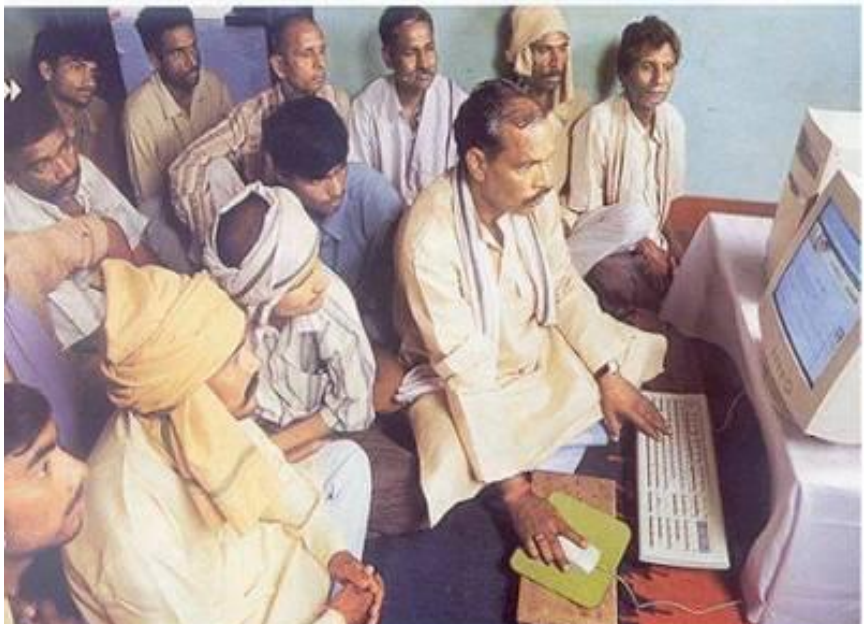
**What we need re: ICT for good AG development:**

1. Affordable Access to Telecom Services
   - Access improving but still the rural poor still lagging
   - A few key ways to tackle this
2. ICT Applications to Increase Impact
   - Lots of projects use ICT but far too few with apps that are sustainable, scalable.
   - Why we care: key problems ICT can help solve.
   - A few examples.
3. A bit more on low cost video
4. **Apps: What Works – and What Doesn't**
5. **Where to get help**

# The Basics

## *Information & Communication Technologies*

- **Cell phones–voice, text, data**
- **Radios–conventional, digital**
- **Digital cameras**
- **Videos (stand-alone)**
- **Internet access and presence**
- **GPS**

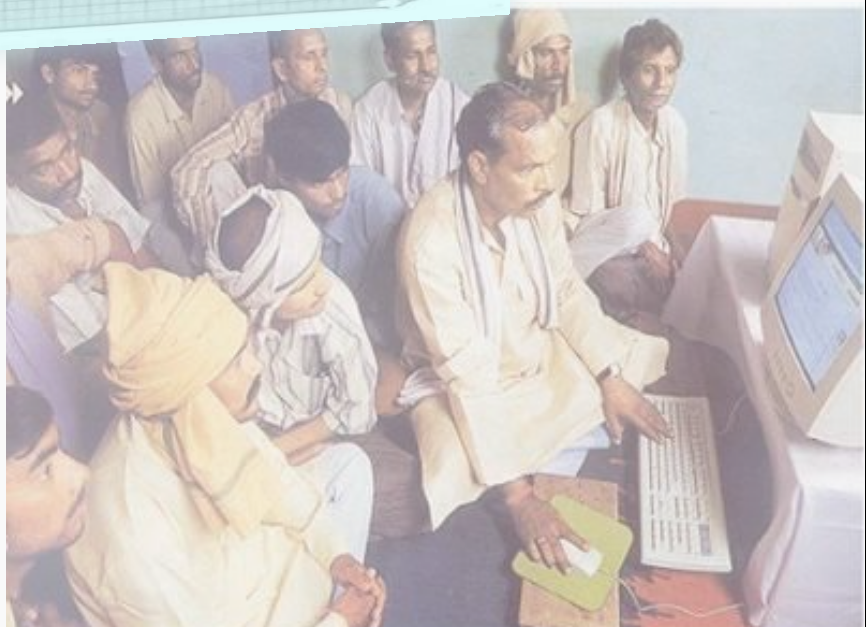


# The Basics

## *Information & Communication Technologies*

- Cell ph
- Radios
- Digital
- Videos
- Internet access and presence
- GPS

**Fast feedback loop from farmer is unprecedented – "voice of the farmer"**



# Telecom access growing but big variations….

| In 2009: | Mobile Phone Subscribers/100 | Internet Users/100 |
|---|---|---|
| Sub-Saharan Africa (developing only) | 38 | 9 |
| LAC (developing only) | 89 | 31 |
| East Asia & Pacific (developing only) | 61 | 24 |
| Europe & Central Asia (developing only) | 119 | 27 |
| ***World*** | ***69*** | ***37*** |

Between:

- Types of telecom service (voice/text versus broadband)
- Between regions


**Source: World Bank Databank** http://databank.worldbank.org/

# And great variation ***between*** countries and ***within*** countries

| | Mobile Penetration, 2011 | Fixed broadband Penetration 2010 Rank out of 19 |
|---|---|---|
| **Haiti** | **52%** | **19** |
| Panama | 151% | 5 |
| Jamaica | 123% | 10 |
| Dominican Rep. | 95% | NA |
| Mexico | 87% | 3 |
| Bolivia | 74% | 16 |

**Source:** ***Latin American Mobile Observatory*** **(p. 12, 71), prepared by GSMA and A.T. Kearney.**

# Three promising ways to improve affordable access

- Improve enabling environment to encourage innovation, competition, transparency
- Facilitate introduction of new tech innovations to reduce up-front and on-going costs
- Build capacity of telecom universal service funds

# A quick summary of your "ICT Toolkit" for telecom access and applications

*… getting cheaper, more diverse*

*Convergence!*

## Cell phones more pervasive

- Shared phones
- Cloud phones

## Internet access becoming easier, cheaper

- wireless techniques
- new tech approaches (e.g., Altobridge)
- voice over IP
- *"cloud computing" and "partly cloudy"*

## Devices for using ICT more effective

- smaller, sturdier, less power hungry
- Bar codes and RFID
- Power solutions available
- GPS

# ICT Applications can help you tackle key AG Challenges

**Most USAID AG projects are already using some ICT.**

***(but few are sustainable, scalable)***

**Most not "packaged" as cool case studies.**

**Jury still out on most.**

**Danger of development "legends," awardees.**

**Large buyers using, paying for ICT tools.**

| | |
|---|---|
| Poor access to affordable financial services | m-Money/m-banking, ICT-enabled indexed insurance; apps to help banks manage loans, increase re-payments |

# ICT Applications can help you tackle key AG Challenges

| Key Challenge | How ICT can help |
|---|---|
| Poor access to good market information and weather info | Market info systems; much better weather info |
| High transaction costs for buyers working with 1000s of farmers | Apps to speed, help buyers manage, reward 1000s of farmers |
| Side selling frustrates buyers | Apps to speed payments by large buyers |
| Poor access to quality extension services | Strong range of new apps using (combining) phones, radio, video; reaching millions of farmers |
| Poor access to affordable financial services | m-Money/m-banking; ICT-enabled indexed insurance; apps to help banks manage loans, increase re-payments |
| Enabling environment needs changes | Advocacy via broad SMS apps |

# Dunavant Cotton: Financial and Supply Chain

**Where:** Zambia

**Problem:** Side selling; no visibility of best producers

**How it works:** Agents pay farmers on the spot. Best producers tracked, rewarded.

**Who Pays**: Large buyer (Dunavant)

**Scale:** 110,000 small farmers

**Impact:** Small farmers paid faster; rewarded for quality.


***USAID PROFIT Project was the catalyst***

***Private company sees clear gains***

***Small farmers win too***

***Started to solve side selling, but led to other gains***

# Dunavant Cotton: Financial and Supply Chain

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***MTZL now 30+ strong***

***Focus: financial transactions and poor farmers***

***Working with seed company (MRI) to offer up-front discounts at harvest time on inputs delivered later***

***Uses e-vouchers (could be m-money)***

***Farmers buy more inputs, save***

***Seed company sells more, improves cash flow***

***(Also does government AG voucher program)***

# Digital Green: Farm Extension Services

**Where:** India (starting in Ethiopia, Ghana)

**How it works:** NGO helps farmers produce short videos showing improved practices. Feedback loop via IVR (phone).

**Who Pays**: Donors (Gates) + farmer association subscriptions. Not sustainable based on subscription fees alone.

**Scale:** so far 109,000 farmers. 2363+ videos

**Impact:** 10x more cost effective than traditional approaches and adoption of better practices increased 7 fold. Larger scale control trial now under way.

***Uses low end video equipment well, involving farmers.***

***Builds in feedback loop from farmers.***

***Offers many tools on its website – analytics, much more***

***Assumes on-going subsidies available from gov't, others.***

***Exploring expansion to SSA***

***Branching out to more – Wonder Village on Facebook!***

# Grameen Community Knowledge Workers (CKWs)

**Where:** Uganda

**How it works:** Trusted (paid) CKWs disseminate AG advice (as well as weather, prices) and collect AG-related info via Android phones. Using smart phones with searchable content plus back-up calls to experts.

**Who Pays**: Grants to Grameen AppLab from MTN-Uganda; Gates Foundation; Earns fees for data collection by same CKWs.

**Scale:** Some 800 CKWs serving 57k households

**Impact:** Pilot study showed farmers increased productivity, incomes; plans call for impact assessment.

***CKW's like DA's have phones with searchable AG content***

***CKW's get back-up real-time (or fast) from phone access to experts***

# Talking Books

**Where:** Ghana and elsewhere

**How it works:** Sturdy "talking book" (small electronic device) allows user to listen to messages (short programs); re-;play; record. their own information; share with other talking books

*No power, not telecom needed* – but can transmit recordings via mobile phone. Batteries last for 70 hours.

Can be used to reinforce training for individuals or small groups.

**Impact:** **F**armers increased productivity ***48%*** using talking books versus 5% via traditional learning approaches.

**Price**: $60

**Could be used to complement DA and FTC training.**

**Farmer groups could buy or entrepreneurs could own, rent.**

http://www.literacybridge.org and http://www.literacybridge.org/files/impact-ICTD2010.pdf

# A few other examples….

**MTZL and MRI – m-money and input provider**

**M-Money potential….  OLAM, Export Marketing, more**

**iCow**

**mFarm**

**mFarmer:  USAID/Gates/GSMA**

- Four challenge grantees to reach 2M farmers
- Learning, TA, toolkit
- www.gsma.com/mfarmer

# Farm Radio International: Participatory Radio Campaigns

From www.farmradio.org

**Where:** Ghana, Malawi, Tanzania, Uganda, Mali

**How it works:** ***Better radio programming combined with ICT's to get feedback from farmers***. SMS reminders pre-broadcast, voice based, call-outs, call-ins, Internet access for radio stations : "active listening" (Gates Foundation funding)

**Scale**: 4-5 month radio campaigns

**Impact**: Listenership, knowledge (70% vs. 18%) and adoption of better practices (39% vs. 4%) significantly more than traditional radio

FARM RADIO INTERNATIONAL

www.farmradio.org

**MP3 recording radios with solar/crank power for playback options**

**Freedom Fone IVR software available for free**

**Website has radio scripts, learning tools**

# Awaaz De: Voice Message Board


**Where:** India

**How it works:** Farmers can post questions; hear others questions, experts answers, listen to archived radio programs**.** Can also broadcast surveys or targeted voice messages. (Managers can access via the web.) Can monitor usage.

***Open source software platform available.***

**Scale**: 6 Indian states; handling 100,000s of phone calls**.** Can be linked to other services (radio, low cost video) and for managing DA's themselves.

**Impact**: Farmers loving hearing other farmers' questions well as experts' responses.

***Helps extend reach of DA's and Kabele level experts.*** as

***Farmers learn from each other <u>and</u> expert***

***Tool also may be useful to DA's directly to ask questions, manage services.***

http://awaaz.de/

# Maize, Rice Supply Chains: USAID's Projet Croissance Economique (PCE)

**Where:** Senegal

**Problem:** Large buyers and 10,000s of small farmers frustrated. Buyers needed more predictable deliveries of high quality cereals + lower transport costs or would turn to importers. Small farmers wanted better prices.

**How it works:** PCE taught farmers how supply chain and prices worked, got offer from Mill at great farm gate price if quality criteria met. With this strong incentive, farmers organized better. Tracked collected and shared key data.

**App:** Excel spreadsheet with data shared via Dropbox, tracking basic farm info including plot sizes (GPS), actual sowing dates, varieties planted, harvest schedule. Lead farmers gather info on paper, field advisor checks quality, keys in, shares. Mill (and PCE) monitors, uses data to schedule transport, make payments.

**Who Pays**: PCE up front; on-going farm groups and mill pay own costs.

**Scale:** Eventually 100,000s small farmers

**Impact:** Small farmers get better prices and lower input costs. Big buyer gets quality needed, lower transport costs + eventually can move into AG services too.

Photo from IRG: http://www.irgltd.com/Our_Work/Projects/Senegal/Highlight-Nerica.html

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***USAID Project critical as the catalyst to change how supply chain works***

***Private company sees clear gains***

***Small farmers win too***

***Can be extended to many more chains***

***Application "frugal" – excel, drop box, data collected first on paper***

***Still needs GPS Android app!***

Photo from IRG: http://www.irgltd.com/Our_Work/Projects/Senegal/Highlight-Nerica.html

# Market Price Services – Hard to get RIGHT!

**Where:** All over – often first service a project thinks is needed: ***IS IT?***

**Biggest Challenges:**

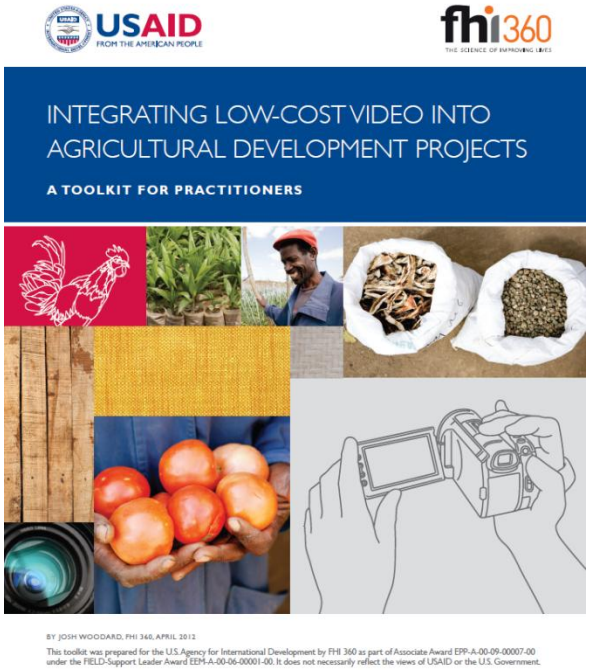
- *Trusted enumerators with prices usable for commercial decisions*
- *Build in way to get concrete feedback from users!*
- *Don't assume government enumerators will hit the mark. Test! Confirm!*
- *Cover right markets, commodities – and grades?*
- *The closer to actual transaction prices, the better. Crowd sourcing?*
- *Combine with other information services*
- ***Who pays?*** *Sponsors? Farm associations?*
- *Essential: use right ICT tools to efficiently collect, check, distribute data!*
- *Only in India (RML) does it appear to be sustainable*
- *LAC has industry association (gov't systems):* www.mioa.org

**Impact**: Some studies showing up to 15% price gains, changes in behavior…

# Low Cost Video

There is growing interest from development practitioners and government agencies in using ICT to enhance development impacts.

Video is one such tool, although it is not as simple as just giving cameras to farmers or staff.

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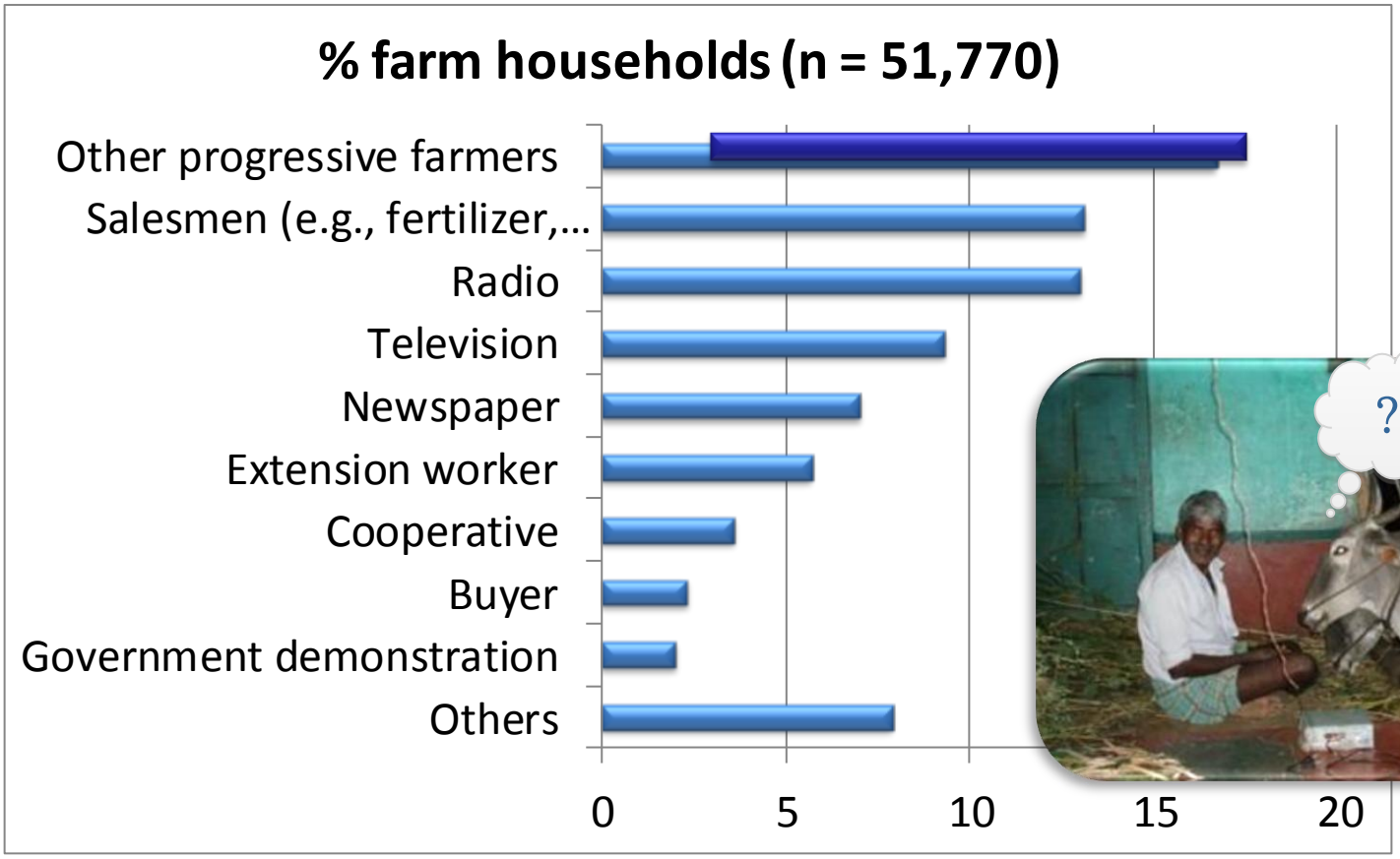
# Agricultural Social Networks




***Main source of information about new technology and farm practices over the past 365 days (India: NSSO 2005)***

# Participatory Content Production

**Digital Green System**

Introduction to innovations
- Standard extension procedure

Rough "storyboarding"
- Repetitive pattern; easy to learn
- Minimize post-production

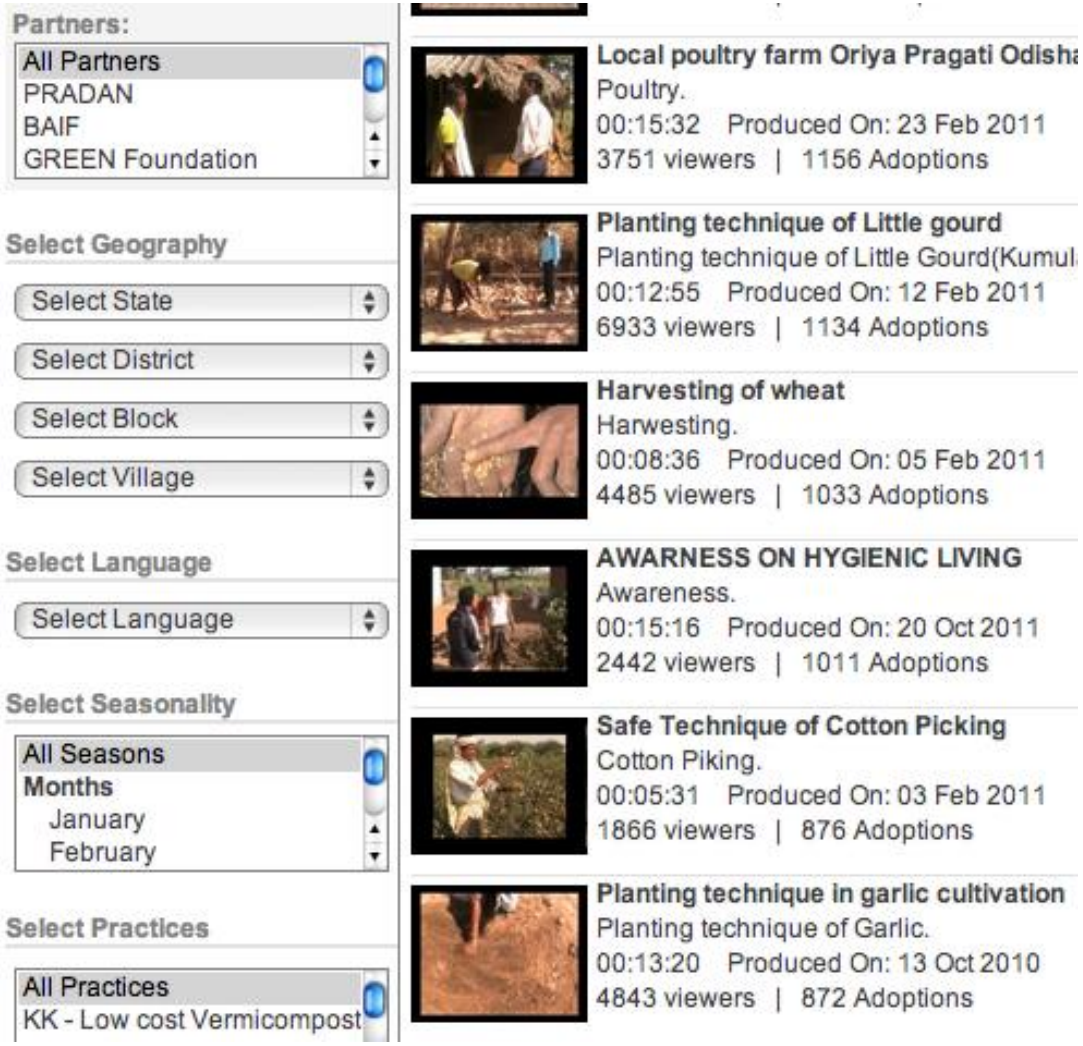
Local farmers on their own fields
- Reduce perception of "teachers"
- Promote "local stars"

**Slide from digital Green's CEO, Rikin Gandhi**

# Video Database

**Digital Green System**

**http://www.digitalgreen.org**




**Slide from digital Green's CEO, Rikin Gandhi**

Digital Green System

# Mediated Instruction

**Local mediator**

- Performance-based honorarium

**Human engagement**

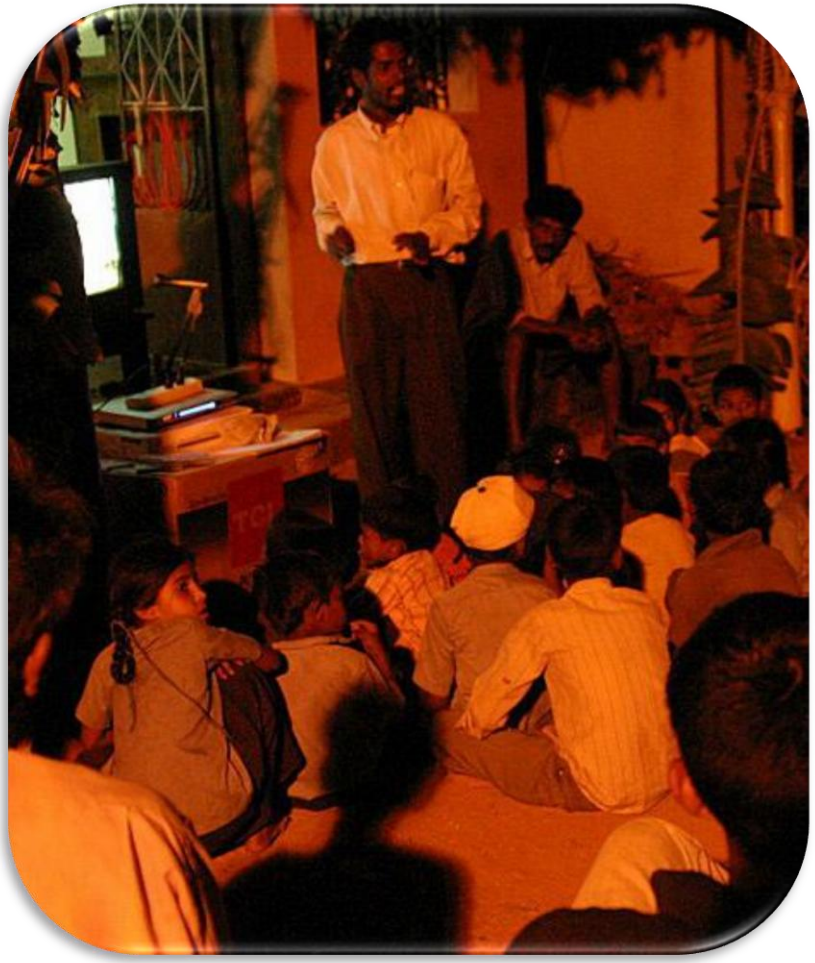
- Field questions, capture feedback, encourage participation
- Balance genders

**On-demand screenings**

- Choice time and place
- Not “stand-alone” kiosk

**Support and monitoring**

- Daily metrics and feedback
- Official extension staff



Slide from digital Green’s CEO, Rikin Gandhi

# Structured Sequencing

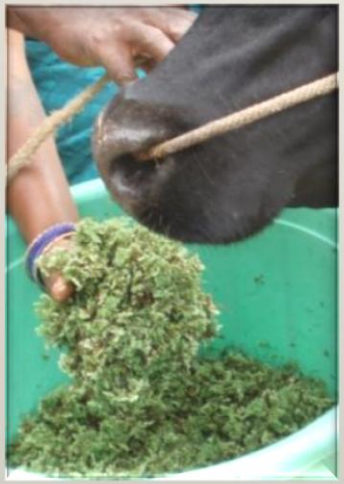
**Digital Green System**

**Community Assessment**

**Audience**
**Awareness**
**Season**
**Location**

**Group Participation**

**Practices with short-term visible rewards**



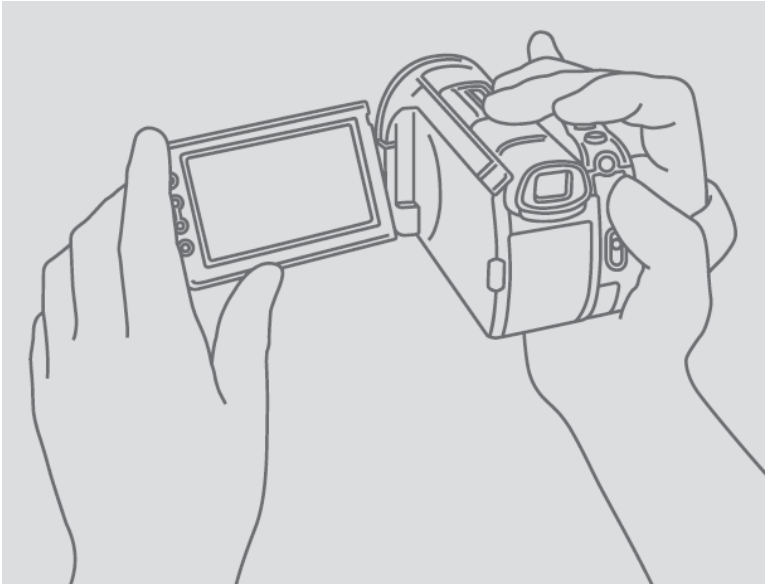
**Practices with longer-term visible rewards**

**Time**

**Slide from digital Green's CEO, Rikin Gandhi**

# What do we mean by “low-cost video”?

- By low-cost video is defined here to mean short, modular videos that are produced by local players using basic equipment and often free editing software.



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# Toolkit Overview

| | |
|---|---|
| **Component 1: Snapshot of the field** | • How is low-cost video currently being used for agricultural extension services? |
| **Component 2: Planning** | • Is low-cost video an appropriate way to achieve our objectives? |
| **Component 3: Creating videos** | • How can we create our own agricultural extension videos? |
| **Component 4: Disseminating videos** | • What is the best way to disseminate our videos? |
| **Component 5: Measuring impact** | • How can we track the impact that our videos are having on farmers? |
| **Component 6: Technical inputs** | • What are the technical considerations we need to keep in mind? |

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# Component 1

- Provides an overview of how video is currently being used for agricultural extension services. It includes illustrative examples from organizations using video both in Africa and elsewhere.

digitalGREEN

www.digitalgreen.org

InsightShare

WCF
WORLD COCOA FOUNDATION

1 OMPT
One Media Player per Teacher

AGRO insight
communicating agriculture

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# Low Cost Video – Evidence from Digital Green

## Cost:

- About $5 to produce a video
- But more needed for quality control, feedback, dissemination

## Digital Green measured, compared impact:

- About $5 to produce a video
- But more needed for quality control, feedback, dissemination

# What Works

How can we scale this to 1 million farmers?

How can we make sure this service continues beyond our project?

What is most valuable part of the service?

Who will pay?

# What Doesn't

We have an ICT budget component – how do we spend it?

We don't have any project funds for ICT.

What is the "need"?

Let's do a "pilot" to get going fast!

# What Works

How can we aggregate demand to reduce telecom costs?

Is this the best use of our funds to get impact?

How will know if this project has the impact we expect?

# What Doesn't

We can afford to put in a VSAT for telecom access.

What a great "success story"!

We won an ICT4D award!

# What Works

**Public-Private Partnerships!**

**MNO's need your know-how!**

**USAID missions encouraging PPP's more than ever**

**See Vodafone's Connected Farmer Market Research**

**Examples:  mFarmer Initiative and Connected Farmer Alliance**

# Resources

**mFarmer:  USAID/Gates/GSMA**

- Four challenge grantees to reach 2M farmers
- Learning, TA, toolkit
- www.gsma.com/mfarmer

**FACET – ICT and AG (focus on Africa but …)**

- Learning:  briefing papers, webinars, toolkit
- Short term TA
- Workshops
- www.ICTforAG.org

**World Bank:  ICT in AG Sourcebook**
**http://www.ictinagriculture.org/ictinag/**

**FAO:  www.e-Agriculture.org**

## Discussion -- Questions?

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